Montana Department of Fish, Wildlife & Parks
1420 E. 6th Ave, Helena, MT 59620

Draft **Environmental Assessment**

Elkhorn Mountains Westslope Cutthroat Trout Recovery Program: Introduction of Westslope Cutthroat Trout to Whitehorse Creek

PART I. PROPOSED ACTION DESCRIPTION

1. Type of Proposed State Action:

The proposed project is designed to increase the distribution of pure westslope cutthroat trout (WCT) by introduction of fertilized WCT eggs and/or live fish into a fishless stream. The project is part of the overall Elkhorns Westslope Cutthroat Trout Recovery Program (FWP 1999a) that is intended to ensure the long-term persistence of the seven remaining WCT populations in the Elkhorn Mountain Range.

2. Agency Authority for the Proposed Action

Montana Fish, Wildlife & Parks "…is hereby authorized to perform such acts as may be necessary to the establishment of and conduct of fish restoration and management projects…" under MCA § 87-1-702.

3. Name of Project

Elkhorn Mountains Westslope Cutthroat Trout Recovery Program: Introduction of Westslope Cutthroat Trout to Whitehorse Creek

4. If Applicable:
Estimated Construction/Commencement Date: June – July 2003

Estimated Completion Date: 2005 – 2007

Current Status of Project Design (% complete): 100%

5. Location Affected by Proposed Action (county, range and township)

Whitehorse Creek, Elkhorn Mountains, Broadwater County, R1W, T7N

6. Project Size: Estimate the number of acres that would be directly affected that are currently:

1. Developed/ residential – 0 acres
2. Industrial – 0 acres
3. Open space – 0 acres
4. Wetland/ riparian – pure WCT would be introduced to about 3 miles of stream
5. Floodplain – 0 acres
6. Irrigated cropland – 0 acres

Broadwater Misc.

7. Dry cropland – 0 acres
8. Forestry – 0 acres
9. Rangeland – 0 acres
10. Other – 0 acres

7. Map/site plan: See figure 1.

8. Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction.

The U.S. Forest Service manages lands adjacent to Whitehorse Creek. Along with the State, the Forest Service is a cosigner of a Memorandum of Understanding (FWP 1999b) that outlines the agreement between agencies regarding recovery and management of WCT in the Elkhorn Mountains. The Memorandum of Understanding states, "The purpose of the Elkhorn Mountains Cutthroat Trout Restoration Program is to secure existing populations of Missouri River westslope cutthroat trout within the streams flowing within and from the Elkhorn Mountains, and to expand cutthroat trout distribution in suitable barren habitats".

(a) Permits: N/A

(b) Funding:

Agency Name	Funding Amount
Montana Fish, Wildlife & Parks	The Whitehorse Creek WCT Project
National Bring Back the Natives Program	is part of the larger WCT recovery program
Helena National Forest	in the Elkhorn Mountains that annually
Bureau of Land Management	expends $75,000 – $90,000. Cost is detailed
Trout Unlimited	on page 11.

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

Agency Name	Type of Responsibility
US Forest Service, Helena National Forest	Management of federal lands within the Elkhorn Mountain Range

9. Narrative summary of the proposed action or project including the benefits and purpose of the proposed action:

BACKGROUND

Statewide WCT Status: Westslope cutthroat trout have declined in abundance and distribution throughout Montana, and in the Missouri River Basin pure populations are relatively rare (Shepard et al. 1997). Major factors contributing to this decline include competition with nonnative trout (brook, brown, and rainbow trout) that were first introduced to Montana in the 1890's, hybridization with rainbow and Yellowstone cutthroat trout, habitat changes, over-exploitation, and isolation to small headwater streams. Most WCT populations in the Missouri River drainage are considered to have a low likelihood of long-term persistence (100 years) under current conditions.

Elkhorn Mountains WCT Status: Seven native and two introduced populations of WCT inhabit streams in the

Elkhorn Mountains (Figure 1). In total, these populations occupy about 13 miles of stream, whereas nonnative trout (brook, rainbow, brown, and hybrid cutthroat trout) occupy about 112 miles of stream. In addition to competition with nonnative trout, threats to remaining Elkhorn WCT populations include small population sizes (about 60 to 500 WCT per population) and restricted distribution (0.1 to 3 miles) within each stream. Overall, current WCT distribution and abundance (2,000 – 3,000 total WCT) in the Elkhorn Mountains is much reduced than what would be expected without nonnative competition and habitat changes (e.g., historic placer mining). The likelihood of WCT continuing to persist in the mountain range is considered low unless restoration activities secure and increase the number and distribution of remaining populations. To date, WCT restoration efforts in the Elkhorn Mountains have included reducing nonnative competition in Muskrat, Staubach and South Fork of Warm Springs creeks by capturing brook trout with electrofishing and placing them below barriers constructed to prevent their upstream migration. The range of WCT in the mountain range has also been increased through the introduction of eggs from Prickly Pear and Hall creek WCT into previously fishless reaches of Eureka and Little Tizer creeks.

In 1999 the State of Montana, along with several federal agencies and non-government organizations, signed a Memorandum of Understanding (MOU) and Conservation Agreement for WCT (FWP 1999b) to provide direction in conserving WCT populations throughout their historic range in Montana. In addition, FWP, the U.S. Forest Service, and the Bureau of Land Management signed an MOU (FWP 1999c) to manage existing populations within the Elkhorn Mountains, and are cooperatively implementing the Elkhorn Mountains Cutthroat Trout Restoration Program (FWP 1999a). The goal of both agreements is to ensure the continued persistence of WCT in the Missouri River Basin and the Elkhorn Mountains by securing and expanding remaining pure WCT populations. Expansion of populations would occur by introduction of WCT into streams where nonnative trout were first removed, or into streams that were previously fishless.

The proposed action described in this Environmental Assessment (EA) seeks to expand the distribution of WCT in Elkhorn Mountains by placing eggs and/or live fish into a currently fishless stream. Success of this proposed action would increase the current distribution of WCT in the Elkhorn Mountains by about 3 stream miles, and would provide a genetic reserve for locally adapted WCT populations. Accordingly, this project will help achieve the goal and objectives listed in the conservation agreements for restoration of WCT both statewide and in the Elkhorn Mountains.

PROPOSED ACTION

The proposed action is to introduce pure WCT eggs and/or live fish from local WCT populations into Whitehorse Creek, a tributary to Canyon Ferry Reservoir (Figure 1). Whitehorse Creek flows about 4.3 miles from its headwaters in the Elkhorn Mountains to where the stream goes sub-surface prior to crossing Highway 287 (see Figure 1). Geological characteristics of the stream channel and visual observations indicate the stream rarely flows to Canyon Ferry Reservoir, and then only over a short period of time during extreme runoff events. Base flow of the stream is about 2 ft^3/s, and about 3 stream miles would provide adequate fish habitat including for spawning and over-wintering and drought refuge. Natural and man-made barriers do fragment the stream into three 1-mile reaches. While fish could move downstream over these barriers, they could not move up. Electrofishing surveys of Whitehorse Creek between 1980 and 2002 have documented no fish from where the stream goes sub-surface upstream 3 miles; however, based on landowner observation, the stream is believed to have supported fish (species unknown) in the lowermost stream reach until the late 1970's. Reasons for disappearance of these fish are unknown, but may be related to drought and lower quality fish habitat in the section of stream the fish occupied.

Because Whitehorse Creek is secure from nonnative trout, and because it is currently fishless, it provides good

opportunity for introducing WCT as a conservation project. Based on similar size streams in the Elkhorn Mountains, Whitehorse Creek could support 1000 – 2000 trout. A majority of these fish would occupy the upper sections of the stream where habitat quality is highest. Isolating barriers would prevent upstream mixing of fish; however, the length of stream between barriers (about 1 mile each reach) should support enough individuals to prevent genetic problems associated with inbreeding depression in small populations. Many WCT populations isolated to similar habitat conditions as those found in Whitehorse Creek have been self-sustaining for decades in the upper Missouri River drainage.

In addition to expanding the overall WCT distribution in the Elkhorn Mountain Range, this project would also create a genetic reserve for "at risk" populations within the local area. The project would involve introducing fertilized eggs or fish from local donor populations that have adapted to habitat conditions in the upper Missouri River drainage; by this means, the introduced population will have a better chance for long-term persistence, and will perpetuate locally adapted genetic characteristics. This project would use several pure WCT populations as donor sources. Disadvantages of using multiple donor sources are that single populations are not directly "replicated", and that some unique genetic attributes may be lost when populations are mixed. However, a benefit is that the introduced population would have a high amount of genetic variation that represents several populations, thereby providing it a greater ability to adapt to habitat conditions in Whitehorse Creek (Krueger et al. 1981). In addition, by using multiple donor sources fewer eggs or fish would be transferred from each donor population compared to if only a single donor population was exploited, thereby lessening the possibility that the transfers will have a negative impact on the donor populations.

Specifically, the proposal is to introduce fertilized WCT eggs and or live fish from 2 – 5 nearby WCT populations into the upper reach of Whitehorse Creek. Eggs or fish would be introduced over a 3 – 5 year period, with the project duration dependent on availability of eggs and fish from donor sources, and a minimum number of individuals introduced that will provide a strong genetic base to the population. Specific introduction methods and donor populations are discussed in Appendix 1.

10. List of agencies consulted during preparation of the EA:

- Montana Fish, Wildlife & Parks, Townsend, Bozeman, Great Falls, and Helena
- U.S.D.A. Forest Service, Helena and Townsend
- University of Montana, Wild Trout and Salmon Genetics Laboratory – Missoula

PART II. ENVIRONMENTAL REVIEW

Evaluation of the impacts of the Proposed Action including secondary and cumulative impacts on the Physical and Human Environment.

A. PHYSICAL ENVIRONMENT

1. LAND RESOURCES Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. **Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		X				
c. **Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				
f. Other:						

2. AIR Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. **Emission of air pollutants or deterioration of ambient air quality? (also see 13 (c))		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. ***For P-R/D-J projects, will the project result in any discharge, which will conflict with federal or state air quality regs? (Also see 2a)		X				
f. Other:						

3. WATER Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Inde
	Unknown *	None	Minor *	Potentially Significant		
a. *Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?		X				
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of floodwater or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?		X				
i. Effects on any existing water right or reservation?		X				
j. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
l. ****For P-R/D-J, will the project affect a designated floodplain? (Also see 3c)		X				
m. ***For P-R/D-J, will the project result in any discharge that will affect federal or state water quality regulations? (Also see 3a)		X				
n. Other:						

4. VEGETATION Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		X				
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. ****For P-R/D-J, will the project affect wetlands, or prime and unique farmland?		X				
g. Other:						

** 5. FISH/WILDLIFE Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game imals or bird species?			X		No	5b
c. Changes in the diversity or abundance of nongame species?			X		No	5c
d. Introduction of new species into an area?			X		No	5d, 5b
e. Creation of a barrier to the migration or movement of animals?		X				
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				5c
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				
h. ****For P-R/D-J, will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat? (Also see 5f)		X				
i. ***For P-R/D-J, will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d)			X		No	5b, 5d
j. Other:						

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (Attach additional pages of narrative if needed):

Comment 5b. The proposed project would increase the abundance and range of pure WCT, a rare and unique resource with limited distribution in the Missouri River drainage and Elkhorn Mountains. This is a minor impact because no displacement of other game fish is expected, and the distribution of a game fish (WCT) in the Elkhorns would increase. In the long-term, an overall increase in angling opportunities is expected with this project. Westslope cutthroat trout are currently protected catch-and-release regulations in streams in the Elkhorn Mountains, but restoration efforts like the proposed action are intended to increase overall WCT abundance to allow future harvest of the species in this and other streams.

Comment 5c: The proposed action will introduce WCT into a stream that is currently barren of fish. A potential impact of any fish introduction into a fishless stream is on resident aquatic invertebrates and amphibians. To address aquatic invertebrate concerns, invertebrates will be collected and identified from Whitehorse Creek prior to introduction of any fish or eggs. Dr. Dan Gustafson (Montana State University) will analyze the collections to determine the presence of any threatened or endangered species. In previous WCT introduction projects in the Elkhorn Mountains, Dr. Gustafson's collections from fishless streams found: 1) no threatened or endangered invertebrate species, 2) species found are common and widespread in the Rocky Mountains, and 3) all species collected occur at other sites where fish are present. Based on the invertebrate communities, his conclusion was that there is no reason why fish transfers should not take place. It is unlikely that any threatened or endangered invertebrate species will be identified in Whitehorse Creek; however, with identification of such species the project would be postponed and re-evaluated through an additional Environmental Assessment.

The introduction of WCT into fishless streams in the Elkhorn Mountains in unlikely to impact native amphibians. Species sensitive to fish introductions generally breed in lakes or ponds, and would not be affected by the proposed Whitehorse Creek introduction. The only stream breeding species common to the area, the Columbia spotted frog, has co-evolved and coexists elsewhere with native WCT. Electrofishing surveys were conducted in 2002, however, to determine if unexpected species like the Pacific giant salamander and tailed frog were present in Whitehorse Creek. No amphibians were found in more than 2 miles of the stream. Furthermore, slow water areas (e.g., beaver ponds and old side-channels) that are preferred by amphibians, are also uncommon in Whitehorse Creek.

Comment 5d: This project would introduce WCT into a stream that is currently barren of fish. While WCT are native to the Elkhorn Mountain Range, it is unknown if they historically occupied Whitehorse Creek. Also see comment 5c.

A potential impact of transferring fish between streams and using a hatchery for egg rearing is the introduction fish pathogens to Whitehorse Creek. To address this concern fish samples were collected from potential donor populations – these samples have been or are currently being tested for the presence of bacterial kidney disease (BKD), enteric redmouth, whirling disease, furunculosis, infectious hematopoietic necrosis virus, infectious pancreatic necrosis virus, and viral hemorrhagic septicemia. Previous tests of donor WCT populations have been positive for *Renibacterium salmoninarum*, the bacteria which causes BKD, using an enzyme-linked immunosorbent assay (ELISA); however, confirmatory tests on the same populations using the polymerase chain reaction (PCR) method have been negative. Likely, the differing results of the tests indicate that *R. salmoninarum* is present in the donor streams, but fish are not highly infected. Positive tests for *R. salmoninarum* have been found in wild trout populations throughout Montana, and would not be considered a significant threat in this introduction as it is a fairly common bacterium and because the stream is generally isolated by a dry reach. Positive results for other pathogens are unlikely; however, these would be evaluated by the FWP Fish Health Committee for importance. Donor fish populations that test positive for important pathogens (e.g., whirling disease) would not be used for the introduction effort. Finally, the potential of disease being transferred from hatchery to the wild will be reduced by isolating eggs in the hatchery, and by treating eggs with formalin and iodine (external disinfectants) during incubation and prior to placement in on-site, streamside incubators.

B. HUMAN ENVIRONMENT

NOISE/ELECTRICAL EFFECTS Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Increases in existing noise levels?		X				
b. Exposure of people to serve or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other:						

7. LAND USE Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				7a
b. Conflicted with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on or relocation of residences?		X				
e. Other:						

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (Attach additional pages of narrative if needed):

Comment 7a. Introduction of WCT is not expected to have any impacts on current land activities in areas adjacent to the streams in the Helena National Forest. The Elkhorn Mountains are currently designated as the "Elkhorns Wildlife Management Unit", which establishes land management guidelines that maintain or enhance wildlife habitats. Accordingly, Forest Service riparian guidelines are set for management of streamside areas regardless of the presence of fish. With these current guidelines, habitat conditions are suitable for WCT in Whitehorse Creek, and no additional restrictions on land management activities, including to the Whitehorse Cattle and Horse Grazing Allotment (two permits), are necessary with the introduction of fish so long as current riparian guidelines are observed.

8. RISK/HEALTH HAZARDS Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?		X				
d. ***For P-R/D-J, will any chemical toxicants be used? (Also see 8a)		X				
e. Other:						

9. COMMUNITY IMPACT Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
f. Other:						

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (Attach additional pages of narrative if needed):

10. PUBLIC SERVICES/TAXES/UTILITIES Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:		X				
b. Will the proposed action have an effect upon the local or state tax base and revenues?		X				
c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Will the proposed action result in increased used of any energy source?		X				
e. **Define projected revenue sources			X			10e
f. **Define projected maintenance costs.			X			10f
g. Other:						

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (Attach additional pages of narrative if needed):

Comment 10e. The proposed project is part of the ongoing Elkhorn Mountains Westslope Cutthroat Trout Restoration gram (FWP 1999a). The Elkhorns Program annually expends $75,000 to $90,000 and is jointly funded by Montana Fish, Wildlife & Parks, the U.S. Forest Service (National Fish and Wildlife Foundation and Helena National Forest), the Bureau of Land Management, and Montana Trout Unlimited. Specific costs associated with the proposed project are difficult to predict because of variable weather conditions and because the availability of spawning WCT will change from year to year. However, based on similar introduction efforts in the Elkhorn Mountains labor allocated to project would be 20 to 30 man-days per year ($3000 - $4500) of effort until a self-sustaining population is established (3 – 5 years).

Comment 10f. Maintenance costs would be minimal with successful establishment of a self-sustaining WCT population in Whitehorse Creek after a 3 – 5 year period of introductions.

** 11. AESTHETICS/RECREATION Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comm Index
	Unknown *	None	Minor *	Potentially Significant		
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?		X				
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. **Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)		X				
d. ***For P-R/D-J, will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c)		X				
e. Other:						

12. CULTURAL/HISTORICAL RESOURCES Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. **Destruction or alteration of any site, structure or object of prehistoric historic, or paleontological importance?		X				
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				
d. ****For P-R/D-J, will the project affect historic or cultural resources? Attach SHPO letter of clearance. (Also see 12.a)		X				
e. Other:						

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (Attach additional pages of narrative if needed):

SIGNIFICANCE CRITERIA

. SUMMARY EVALUATION OF SIGNIFICANCE Will the proposed action, considered as a whole:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources that create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. ***For P-R/D-J, is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)		X				
g. ****For P-R/D-J, list any federal or state permits required.						

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Water Resources (Attach additional pages of narrative if ded):

PART II. ENVIRONMENTAL REVIEW, CONTINUED

2. Description and analysis of reasonable alternatives (including the no action alternative) to the proposed action whenever alternatives are reasonably available and prudent to consider and a discussion of how the alternatives would be implemented:

One alternative was considered during the preparation of this EA

1) No Action Alternative

The predicted consequences of the "No Action" alternative are:

- About 3 miles of suitable fish habitat would remain fishless.
- The likelihood of losing unique WCT genetic characteristics would remain high with the high probability that the donor WCT populations will ultimately go extinct.
- Conservation goals for WCT in the Elkhorn Mountains would be more difficult to achieve.
- No costs associated with introduction efforts.

2) Preferred Alternative: Introduction of pure WCT to Whitehorse Creek (proposed action)

The predicted consequences of the Preferred Alternative were detailed and discussed in Part I and Part II.

3. Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency:

None

PART III. NARRATIVE EVALUATION AND COMMENT

Addressed in Part I and Part II.

PART IV. EA CONCLUSION SECTION

1. Based on the significance criteria evaluated in this EA, is an EIS required (YES/NO)? If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action.

No. An EIS is not required under the Montana Environmental Policy Act (MEPA) because the project lacks significant impacts to the physical or human environment. Therefore, the impacts are appropriately addressed through an Environmental Assessment. The primary

impact associated with the project is increased abundance and distribution of WCT in the Elkhorn Mountains, which is the intended consequence of the action.

2. Describe the level of public involvement for this project if any and, given the complexity and the seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?

Public involvement for this project included Legal notification of this EA in the Boulder Monitor, Helena Independent Record, Townsend Star, Montana City Courier and Whitehall Ledger. The EA was mailed to local landowners and individuals and organizations that previously indicated interest in WCT projects in the Elkhorn Mountains. The EA was also available on the FWP web page (http://www.fwp.state.mt.us). Public comments can be given at the FWP web page, in writing at the address below, or at public open houses where questions regarding these projects can be addressed; these will be held at the Montana City School Library on May 13, 2003, between 6 and 8 pm, and at the USDA Service Center in Townsend on May 15, 2003, 6 – 8 pm. Please address any comments or questions to: Lee Nelson, Montana Fish, Wildlife & Parks, 415 South Front Street, Townsend, MT 59644, (406) 266-3425. Comments on the EA's will be accepted until 5:00 pm, June 2, 2003. This level of public involvement is believed adequate for the proposed project.

3. Duration of comment period, if any.

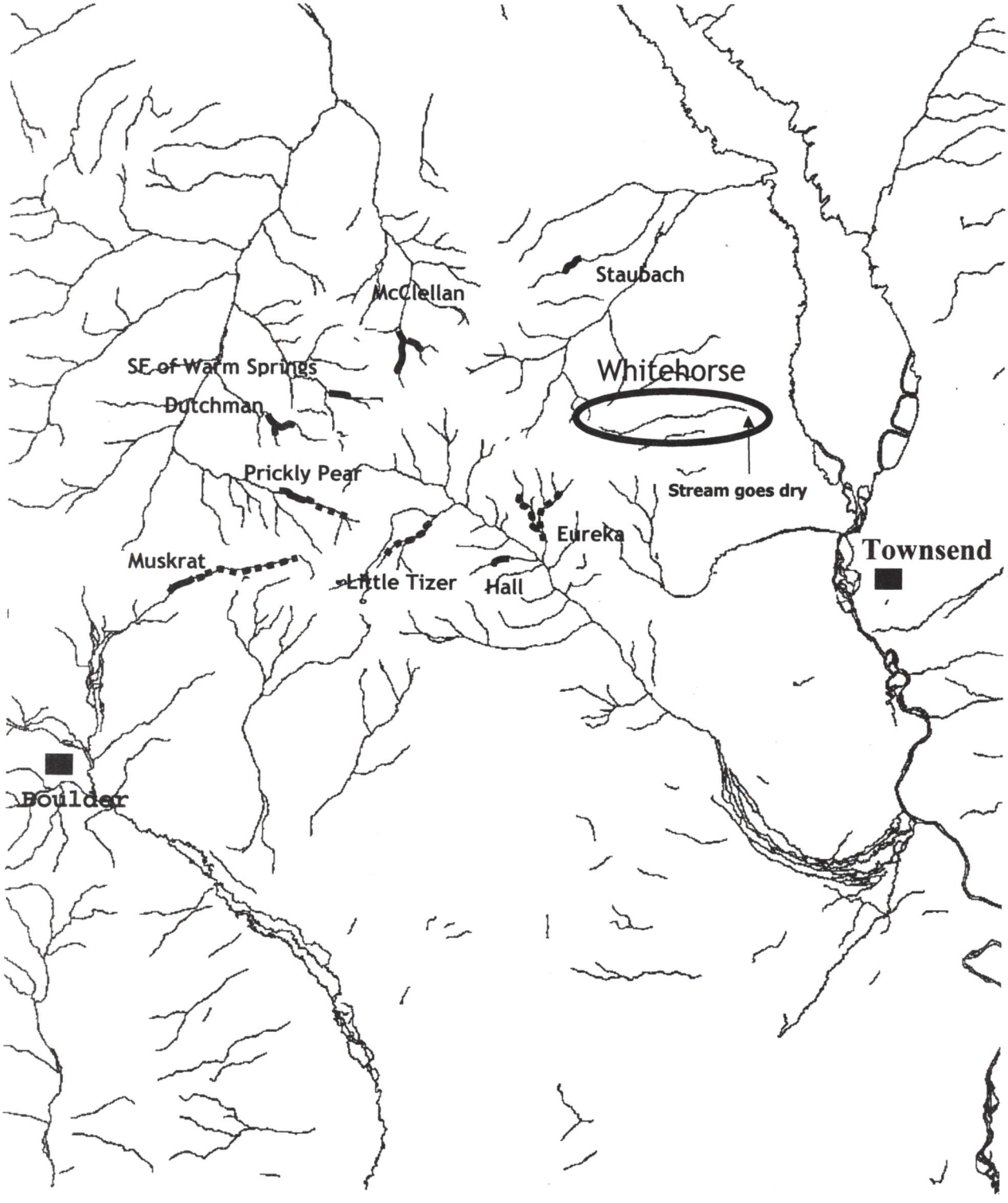
The public comment period for this proposal is from May 2, 2003, to June 2, 2003. Written comment can be mailed to:

Lee Nelson
Montana Fish, Wildlife & Parks
415 South Front Street
Townsend, MT 59644
E-mail: leenelson@fs.fed.us

4. Name, title, address and phone number of the person(s) responsible for preparing the EA:

Lee Nelson
Fisheries Biologist
Montana Fish, Wildlife & Parks
415 South Front Street
Townsend, MT 59644
Phone: 406-266-3425
E-mail: leenelson@fs.fed.us

Figure 1. Approximate location of native westslope cutthroat trout populations in the Elkhorn Mountains at the initiation of the recovery program (heavy black lines), populations that have been introduced during restoration efforts (dotted lines), and potential WCT introduction area (oval).



References

FWP. 1999a. Environmental Assessment: Elkhorn Mountains Westslope Cutthroat Trout Restoration Program, Mountain Range Programmatic Assessment. Prepared by Ron Spoon and Jodie Canfield, Montana Fish, Wildlife and Parks, Region 3, Bozeman, Montana.

FWP. 1999b. Memorandum of Understanding and Conservation Agreement for the Westslope Cutthroat Trout Restoration Program in the Elkhorn Mountains. Montana Fish, Wildlife and Parks, Helena, Montana.

FWP. 1999c. Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana. Montana Fish, Wildlife and Parks, Helena, Montana.

Krueger, C. C., A. J. Gharrett, T. R. Dehring, and F. W. Allendorf. 1981. Genetic aspects of fisheries rehabilitation programs. Canadian Journal of Fisheries and Aquatic Sciences 38:1877-1881.

Shepard, B. B., B. Sanborn, L. Ulmer and D.C. Lee. 1997. Status and risk of extinction for westslope cutthroat trout in the upper Missouri River Basin. North American Journal of Fisheries Management 17:1158-1172.

Appendix 1. Proposed WCT Introduction Methodology

Two methods are being considered for introduction of WCT into Whitehorse Creek, these include the transfer of fertilized eggs and the transfer of live fish. Both methods have been used to establish WCT populations in fishless waters. The benefits of using fertilized eggs are that a large number of fish (eggs) can be introduced during a short period of time, there is a lower chance of spreading disease, and potentially, eggs that hatch in a stream may be more likely "imprinted" to that stream than a fish that was hatched elsewhere. Disadvantages of using fertilized eggs include high labor costs involved with collecting adult fish for spawning and care of fertilized eggs until they hatch, and introducing enough individuals over a short period of time to create a strong genetic base to the new population. The method has been successfully used in two on-going introduction projects (Eureka and Little Tizer creeks) in the Elkhorn Mountains.

The introduction of live fish has been successful at establishing a WCT population in a fishless reach of Muskrat Creek in the Elkhorn Mountains, and in several streams in the Great Fall area (Anne Tews, FWP, Lewistown). Benefits of transferring live fish include establishing a self-sustaining population over a relatively short period of time and reduced labor costs as compared to collection and introduction of eggs. Disadvantages of using live fish include potential negative impacts on the donor population if a significant percentage of the population is moved, establishing a population comprised of a high percentage of siblings, and the potential of transferring disease (see page 8 for discussion on disease transfer).

In this proposed project we will attempt to transfer both fertilized eggs and live fish from donor populations into Whitehorse Creek. The use of fertilized eggs is the favored technique to establish new populations, however, because of the remoteness of the donor streams and Whitehorse Creek it would demand a significant amount of labor to only use this method. Eggs would be introduced from donor WCT populations that are easily accessible, or from streams that are currently being used for other introduction efforts, and live fish would be collected and introduced from streams that are not easily accessible, or where juveniles are abundant. An important benefit of using both methods concurrently is that we should be able to introduce a relatively large number of fish with a high amount of genetic variability over a shorter period of time than would be possible if just one method was used. A goal of the project would be to have roughly equal contribution from each of the donor sources; however, this would be difficult to assess because of possible differences in survival rates among donor sources and between introduced eggs and fry.

The greatest concern of using live fish to establish a new population in Whitehorse Creek would be potential negative impacts of removing fish from donor populations. To reduce this threat, we would only relocate young-of-the-year or age-1 fish. In most stream-dwelling trout populations, there is typically a "surplus" of these younger fish. This is due to the fact that available habitat is generally a limiting factor of abundance in stream populations, and competition between younger fish as they age regulates their number by increasing mortality or immigration. Thus, by moving a small number of younger fish prior to this competition the impacts of removals should be limited. An added benefit of moving younger fish is that they may be more able than adults to adapt to a new environment. However, stress and potential mortality during the actual collection and transport may be higher for younger fish compared to adults.

Timeframe and specific strategies for egg introductions:

1. *Collect eggs from donor WCT populations.* Gametes will be collected during June and July 2003, and successive years, from female and male WCT in donor streams. Fish will be captured by electrofishing or trapping at known spawning locations. In an effort to duplicate the genetic diversity of the donor populations, we will collect gametes from random adult fish without regard to their appearance (e.g., spotting pattern or coloration). Efforts will also be made in succeeding years to collect gametes from fish that spawn both early and late during the spawning period, which may be an important genetic characteristic of populations living in mountain streams with variable spring habitat conditions. When possible, females from one stream may be fertilized with males from other streams to help increase genetic variation. Prior to being returned live to the stream, donor fish will be marked with an adipose fin-clip so they are not used as donors in following years. To lessen the chance that egg-takes will adversely affect the donor populations, only 5 – 15 females will be collected each year from donor populations for egg-take purposes.

2. *Egg incubation – Sun Ranch Fish Hatchery.* Fertilized eggs will be immediately moved to the Sun Ranch Fish Hatchery (near Ennis, MT) for about 2 weeks of incubation. This private hatchery was built in 2002 specifically for WCT restoration projects. The use of the

hatchery is an attempt to reduce egg mortality that may occur with on-site stream incubation. At the hatchery, eggs from each mating will be kept separate until the viability of the eggs is known. This method will help us determine the relative contribution of each female and male to the new population. Prior to bringing eggs back into the wild they will be disinfected with formalin and iodine (external disinfectants to minimize possible disease transfer. Eggs will be incubated in the hatchery until about 1 week pre-hatch.

3. *On-site egg incubation/fry rearing.* One week pre-hatch, eggs will be moved to streamside incubators in donor (to replace a portion of removed eggs) and receiving stream. Streamside incubators consist of a 5-gallon plastic bucket, plastic pipes to provide water flow to the bucket, and artificial substrate to provide shelter for eggs and fry. Incubators will be checked 1 or 2 times each week to monitor water flow, remove dead eggs, and to monitor egg and fry development. Fry will disperse voluntarily from the incubators after about 4 weeks of development.

It is anticipated that each collected female WCT will provide approximately 250 – 300 eggs. About 90% of the eggs will be used in introduction efforts (in Whitehorse Creek and elsewhere), and the remaining will be returned to the donor streams to partially mitigate for lost reproduction as a result of the egg removal. The returned eggs represent about what natural reproduction would have supplied to the population, under the assumption that natural egg mortality is much higher than will be observed during the project.

Timeframe and specific strategies for live fish introductions:

Young-of-the-year and age-1 WCT would be collected from donor populations by trapping and/or electrofishing summer to late fall. Efforts would be made to capture fish throughout the distribution of WCT in each donor stream – this should increase the probability that collected fish are from unique matings. At least 50% of the captured juvenile fish will be returned to the donor stream to ensure that the removals will not significantly impact the population; importantly, the actual number of juvenile fish relocated would be much less than 50% of the total number residing in the donor stream as the entire population will not be sampled. Total fish moved from year to year would be variable and based on annual abundance of young fish from each population, and total number of donor populations utilized. Likely, 25 to 100 fish would be moved from each donor populations each year for 3 to 5 years. Collected fish would be transported to Whitehorse creek in coolers with an ample oxygen supply.

Appendix 2. Proposed WCT Donor Populations

The foremost goal of the proposed Whitehorse Creek WCT introduction project is to preserve characteristics of locally adapted WCT populations. To meet this goal, we will only introduce eggs or fish from pure WCT populations from the general Elkhorn Mountains/ Helena area. Four WCT populations are currently being considered as donor sources for the proposed project, these include Ray Creek in the Big Belt Mountains, and Dutchman, Hall, and Prickly Pear creeks – all in the Elkhorn Mountains (Figure 1). If unexpected events (e.g., presence of disease) prevent collection of an adequate number of eggs or fish from these four populations, or if new

knowledge indicates it is important to preserve characteristics of other local populations, then additional WCT populations in the upper Missouri River Basin would be evaluated for introduction purposes. Because of annual fluctuations in abundance it is difficult to predict prior to initiating the project the relative contribution of fish or eggs from any donor population.

Any WCT population that is used as a donor source will first be evaluated for genetic purity and presence of pathogens. A minimum of 50 genetic and 55 health samples from different fish have been or are currently being analyzed for each of the likely donor streams. Only fish or eggs from pure populations, and populations that do not test positive for important pathogens (see discussion of disease on page 8), will be introduced to Whitehorse Creek. All potential donor populations have been or will be evaluated to ensure abundance is great enough so that egg or fish removal will not significantly reduce population viability.